



Building Technology III
New York City College of Technology

Autocad 2014 : Lesson 02
Zoning Studies
3D Modeling and using Flatshot

Professor Paul C. King, RA, AIA, ARA
Pking@CityTech.Cuny.Edu
Prof.Paul.King@Gmail.com

<http://professorpaulking.wordpress.com/>

<http://students.autodesk.com/>

Lesson 02

Zoning Sheets

Assignment

- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

- Grid and Snap Settings

Wrap up

Assignment



NEW YORK CITY
COLLEGE OF TECHNOLOGY

THE CITY UNIVERSITY OF NEW YORK

DEPARTMENT OF ARCHITECTURAL TECHNOLOGY

ARCH 2330 BUILDING TECHNOLOGY III

Assignment Name: Site Plan & Zoning Diagram

Computer Program(s): AutoCAD, Revit, Web Browser and Blackboard

Student Learning Objectives:

Upon successful completion of this assignment, the student will:

- Develop an understanding of NYC zoning codes and be able to interpret for a specific location.
- Construct scaled site plan showing block and lot site and format on Titleblock.
- Construct scaled Isometric drawing showing zoning

Student Skills Learning Objectives: (AutoCAD)

Upon successful completion of this assignment, the student will:

- Be able to draw an isometric line drawing using isometric grids
- Be able to draw an isometric 3d model
- Be able to add annotation and dimensions
- Understand the use of Paperspace/Modelspace and External References
- Under the use of layers, lineweights and linetypes
- Understand the use of variables including LTscale & PSLIScale

Assessment:

To evaluate the student's achievement of the learning objectives, the professor will do the following:

- Evaluate the student's site plan and zoning diagrams drawings.
- Evaluate the student's use of annotation including drawing titles, notes and dimensions.
- Evaluate the student's understanding and correct interpretation of relevant zoning regulations.
- Drawing will be evaluated on its own and as part of the AutoCAD drawing set submission.

Project Description:

Students will develop a zoning study for the project site incorporating factors including but not limited to OSR, FAR, Setbacks, Sky Exposure Plane, Street wall requirements, available bonuses, use/type, etc. Students will be required to read and identify NYC Zoning code and determine what is relevant to the project and will produce an accurate zoning sheet for their drawing set.

Process:

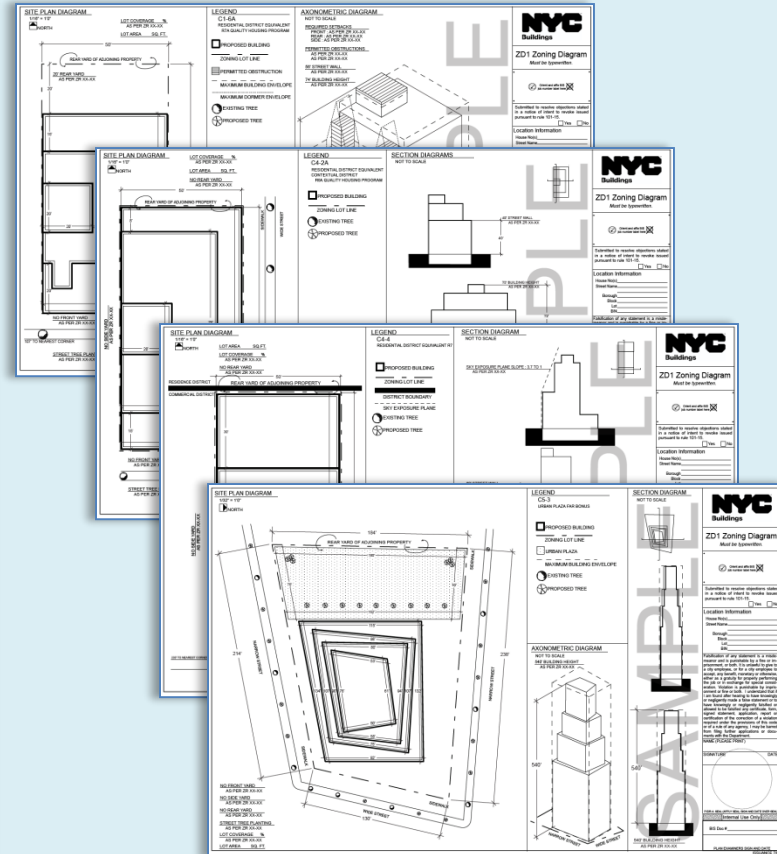
- Locate Site using Oasisnyc.net
- Locate all relevant zoning related resources at NYC.gov. Site all sources (ie. ZR 33-12.3)
- Complete all necessary calculations.
- Produce Zoning sheet including site plan (1:20 or 1:30), Isometric Zoning Diagrams, sections and notes
- Keep all relevant sections of the zoning code in your teams' project binder.
- Post completed sheet as a pdf and as a drawing file by the assigned deadline & add description.

References:

- NYC Zoning <http://www.nyc.gov/html/dcp/html/subcats/zoning.shtml>
- Zoning Diagram Guide http://www.nyc.gov/html/dob/downloads/pdf/zd1_guide.pdf
- Oasis NYC Maps <http://oasisnyc.net/map.aspx>

References:

- NYC Zoning <http://www.nyc.gov/html/dcp/html/subcats/zoning.shtml>
- Zoning Diagram Guide http://www.nyc.gov/html/dob/downloads/pdf/zd1_guide.pdf
- Oasis NYC Maps <http://oasisnyc.net/map.aspx>



Sample 1

References:

1. NYC Zoning http://www.nyc.gov/html/dcp/html/subcats/zoning_shtml
2. Zoning Diagram Guide http://www.nyc.gov/html/dob/downloads/pdf/zd1_guide.pdf
3. Oasis NYC Maps <http://oasisnyc.net/map.aspx>

Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

**Autocad
3D Modeling**

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

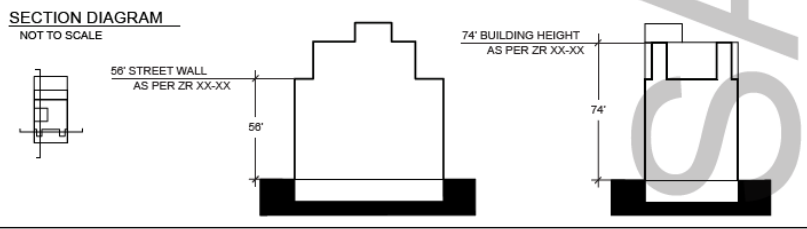
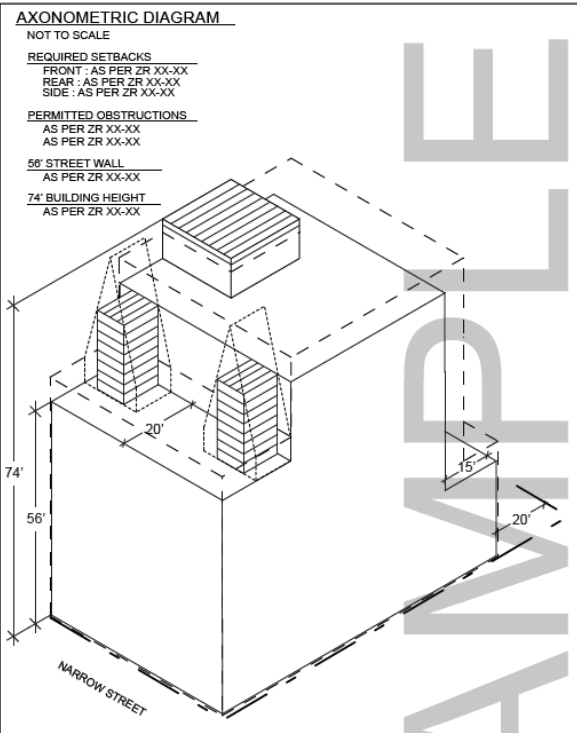
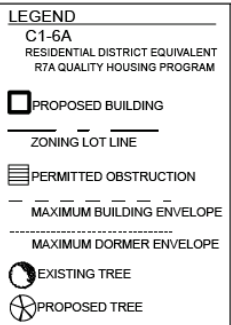
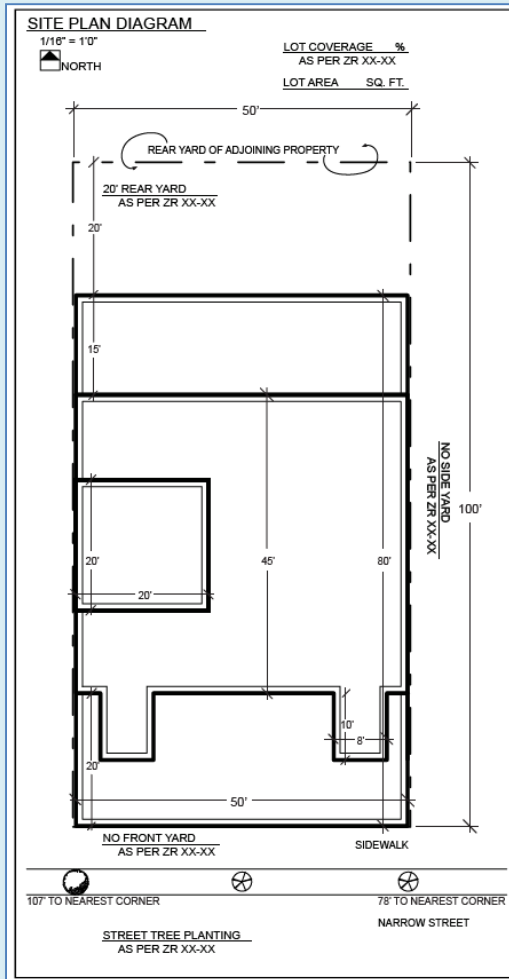
FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

- Grid and Snap Settings

Wrap up



ZD1 Zoning Diagram
Must be typewritten.

Submitted to resolve objections stated in a notice of intent to revoke issued pursuant to rule 101-15.

Yes No

Location Information

House No(s) _____
Street Name _____
Borough _____
Block _____
Lot _____
BIN _____

Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for property performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department.

NAME (PLEASE PRINT) _____

SIGNATURE _____ DATE _____



P.E.R.A. SEAL (APPLY SEAL, SIGN AND DATE OVER SEAL)

Internal Use Only

BIS Doc # _____

PLAN EXAMINERS SIGN AND DATE _____
ISSUANCE 7/00

Sample 2

References:

1. NYC Zoning http://www.nyc.gov/html/dcp/html/subcats/zoning_shtml
2. Zoning Diagram Guide http://www.nyc.gov/html/dob/downloads/pdf/zd1_guide.pdf
3. Oasis NYC Maps <http://oasisnyc.net/map.aspx>

Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

- Autocad
3D Modeling
- Extrude 2D to 3D
 - Standard 3D Views
 - Vpoint 1,2,3
 - Solids & Boolean Operations

- FLATSHOT
- 3D to 2D dwgs
 - Insert & Rename
 - Scale Blocks

- 2D ISOMETRIC
- Grid and Snap Settings

Wrap up

<p>SITE PLAN DIAGRAM 1/16" = 10'</p> <p>LOT COVERAGE % AS PER ZR XX-XX</p> <p>LOT AREA SQ. FT.</p> <p>NO REAR YARD AS PER ZR XX-XX</p> <p>NO FRONT YARD AS PER ZR XX-XX</p> <p>STREET TREE PLANTING AS PER ZR XX-XX</p>	<p>LEGEND C4-2A RESIDENTIAL DISTRICT EQUIVALENT CONTEXTUAL DISTRICT R6A QUALITY HOUSING PROGRAM</p> <p>PROPOSED BUILDING</p> <p>ZONING LOT LINE</p> <p>EXISTING TREE</p> <p>PROPOSED TREE</p> <p>AXONOMETRIC DIAGRAM NOT TO SCALE</p> <p>REQUIRED SETBACKS FRONT : AS PER ZR XX-XX REAR : AS PER ZR XX-XX SIDE : AS PER ZR XX-XX</p> <p>40' STREET WALL AS PER ZR XX-XX</p> <p>70' BUILDING HEIGHT AS PER ZR XX-XX</p>	<p>SECTION DIAGRAMS NOT TO SCALE</p> <p>AXONOMETRIC DIAGRAM NOT TO SCALE</p>	<p>NYC Buildings</p> <p>ZD1 Zoning Diagram Must be typewritten.</p> <p>Orient and affix BIS job number label here <input checked="" type="checkbox"/></p> <p>Submitted to resolve objections stated in a notice of intent to revoke issued pursuant to rule 101-15. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Location Information</p> <p>House No(s) _____ Street Name _____ Borough _____ Block _____ Lot _____ BIN _____</p> <p>Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the connection of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department.</p> <p>NAME (PLEASE PRINT) _____</p> <p>SIGNATURE _____ DATE _____</p> <p>PER A SEAL (APPLY SEAL, SIGN AND DATE OVER SEAL)</p> <p>Internal Use Only</p> <p>BIS Doc # _____</p> <p>PLAN EXAMINERS SIGN AND DATE _____ ISSUANCE 7/00</p>
--	--	--	---

Sample 3

References:

1. NYC Zoning http://www.nyc.gov/html/dcp/html/subcats/zoning_shtml
2. Zoning Diagram Guide http://www.nyc.gov/html/dob/downloads/pdf/zd1_guide.pdf
3. Oasis NYC Maps <http://oasisnyc.net/map.aspx>

Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

**Autocad
3D Modeling**

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

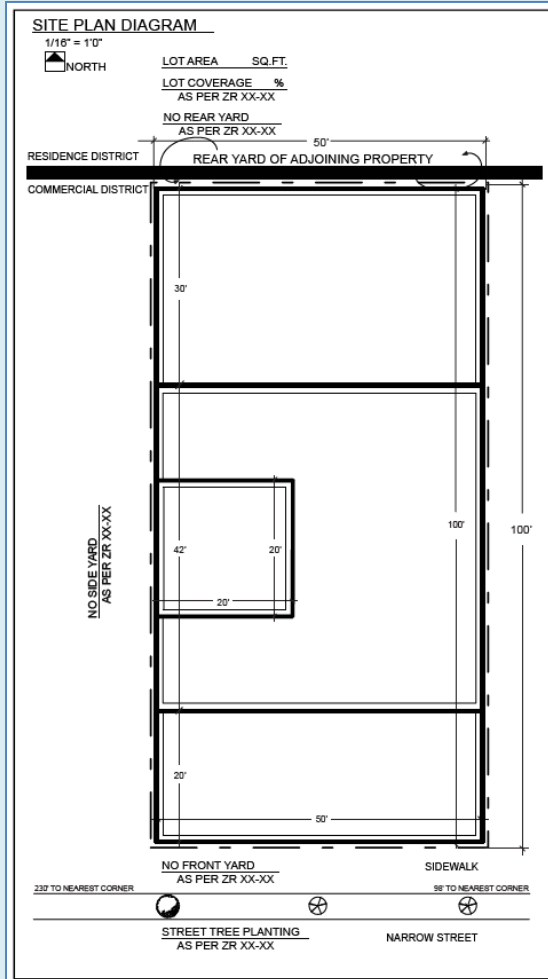
FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

- Grid and Snap Settings

Wrap up



ZD1 Zoning Diagram
Must be typewritten.

Submitted to resolve objections stated in a notice of intent to revoke issued pursuant to rule 101-15.

Orient and affix Bill job number label here

Yes No

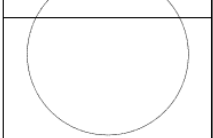
Location Information

House No(s) _____
 Street Name _____
 Borough _____
 Block _____
 Lot _____
 BIN _____

Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department.

NAME (PLEASE PRINT) _____

SIGNATURE _____ DATE _____



PER A SEAL (APPLY SEAL; SIGN AND DATE OVER SEAL)

Internal Use Only

BIS Doc # _____

PLAN EXAMINERS SIGN AND DATE _____
ISSUANCE 7/09

Sample 4

References:

1. NYC Zoning http://www.nyc.gov/html/dcp/html/subcats/zoning_shtml
2. Zoning Diagram Guide http://www.nyc.gov/html/dob/downloads/pdf/zd1_guide.pdf
3. Oasis NYC Maps <http://oasisnyc.net/map.aspx>

Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

- Autocad
3D Modeling
- Extrude 2D to 3D
 - Standard 3D Views
 - Vpoint 1,2,3
 - Solids & Boolean Operations

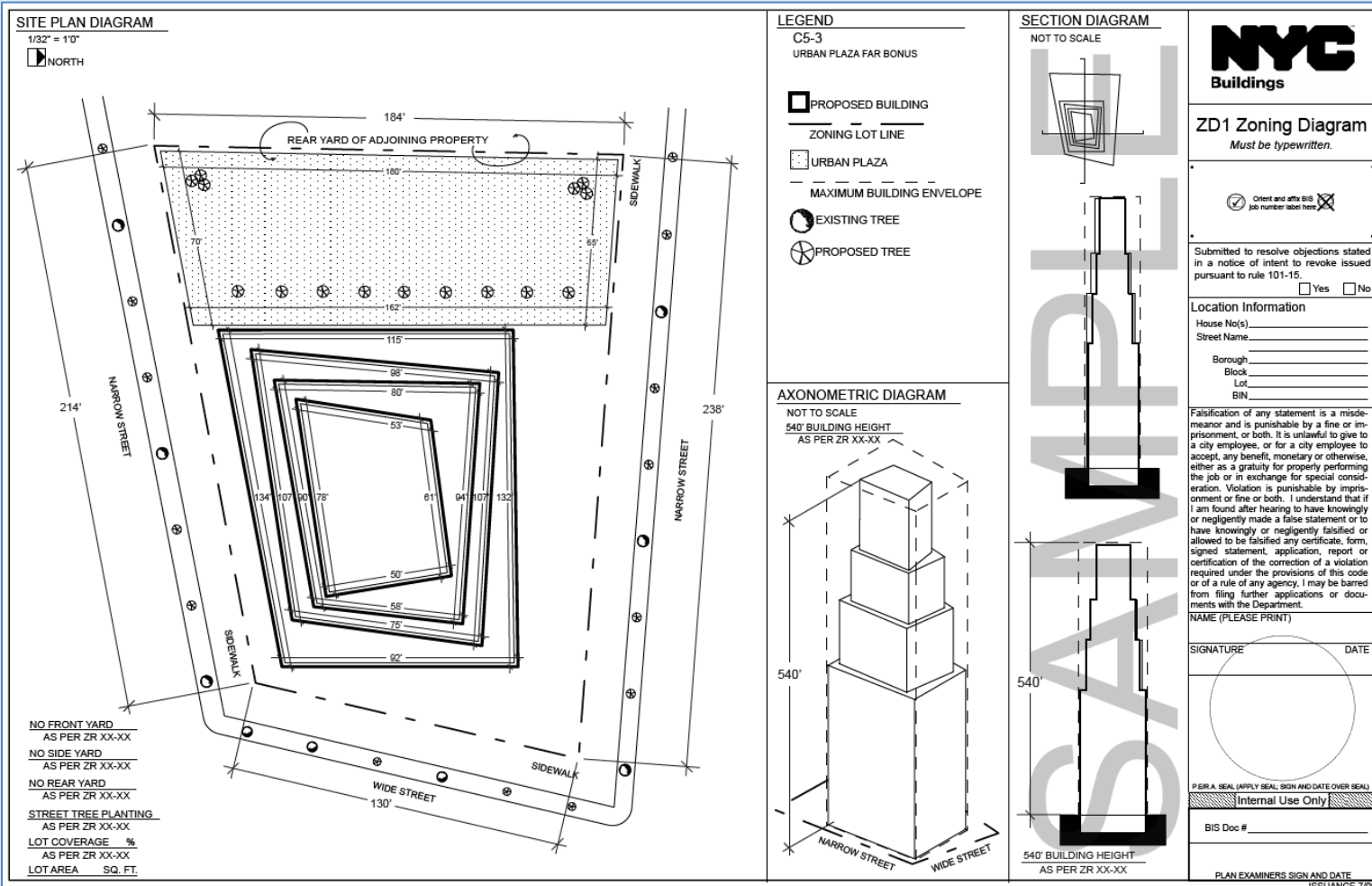
FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

- Grid and Snap Settings

Wrap up



Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

FLATSHOT

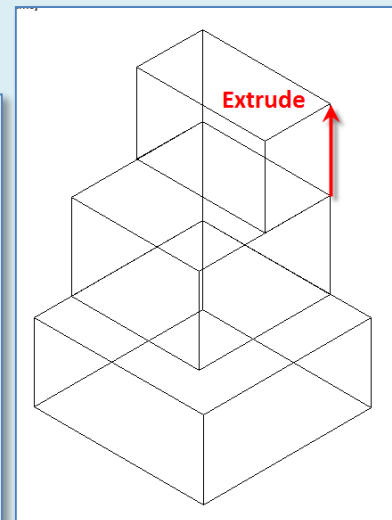
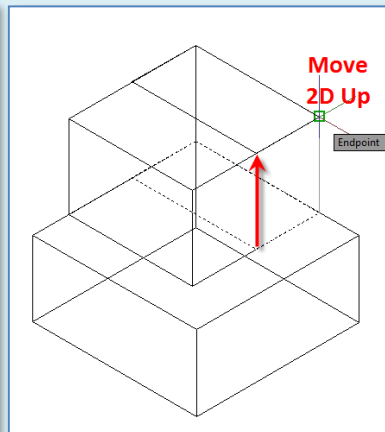
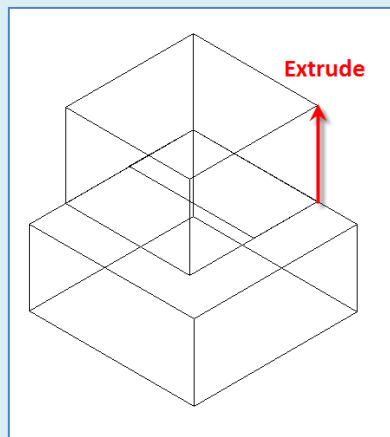
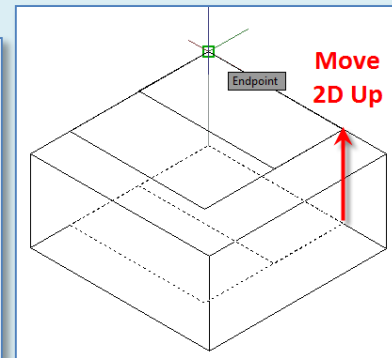
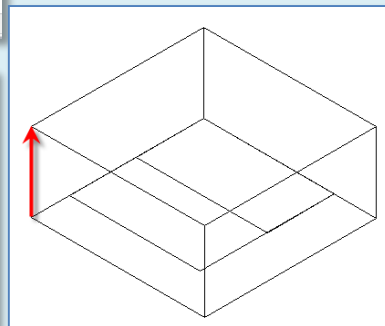
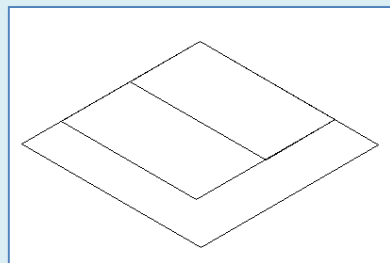
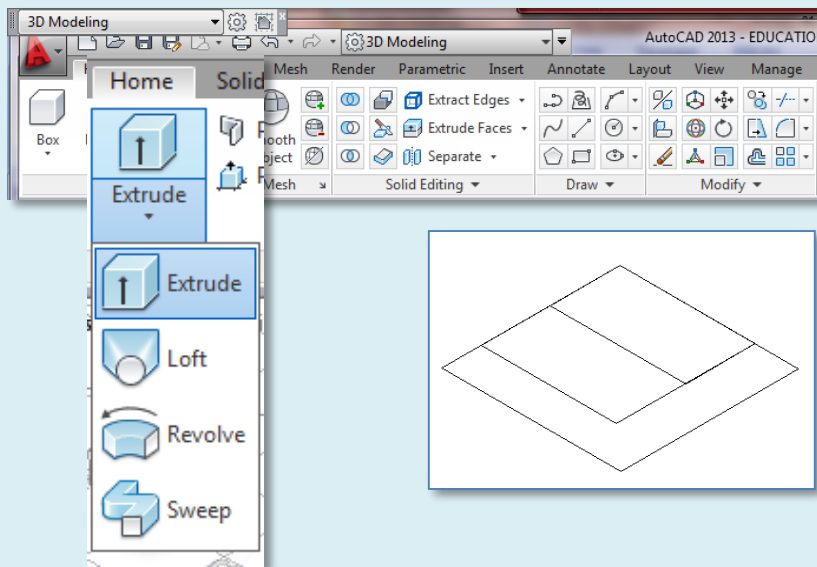
- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

- Grid and Snap Settings

Wrap up

Extrude 2D Geometry to 3D Solids



- Draw 2D
- Extrude
- Move 2D Up
- Repeat Extrude
- Repeat Move

View Menu & Viewcube : Standard Isometric Views

Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

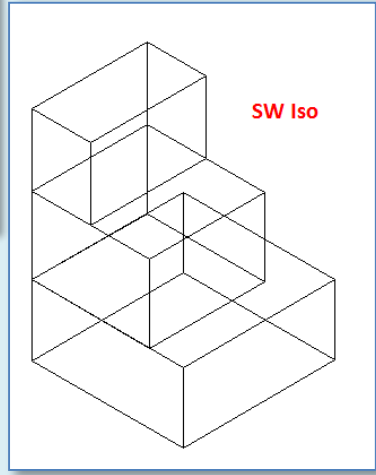
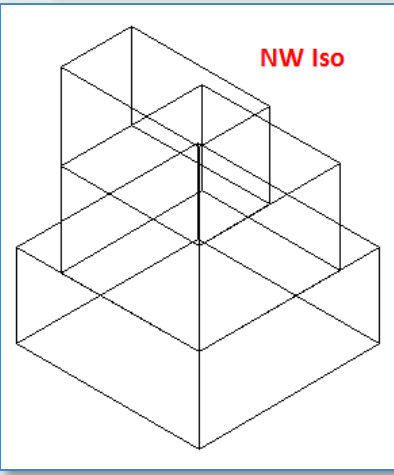
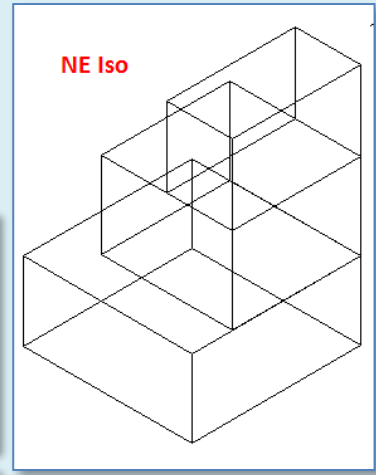
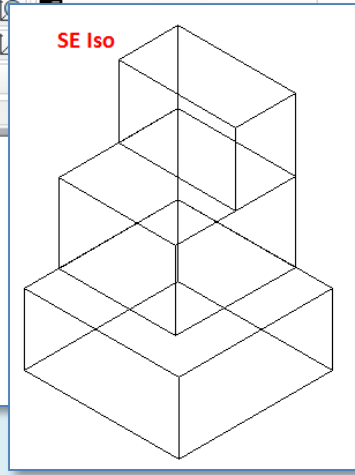
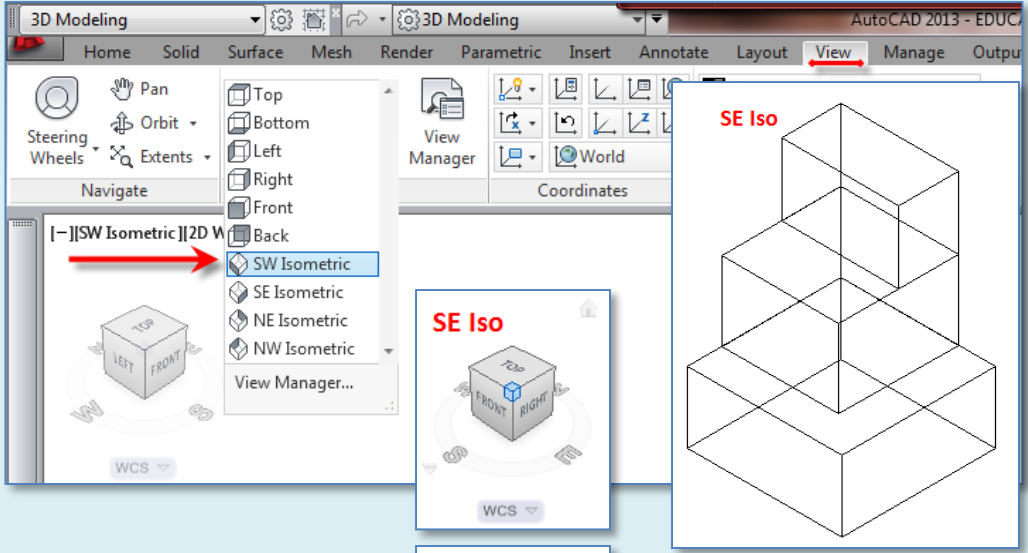
FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

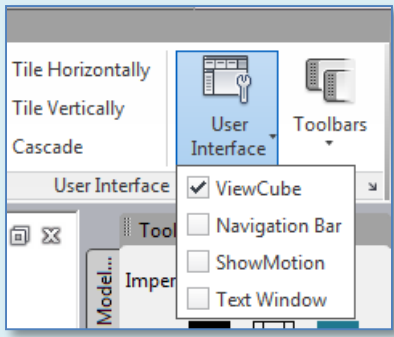
2D ISOMETRIC

- Grid and Snap Settings

Wrap up



• ViewCube



Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

FLATSHOT

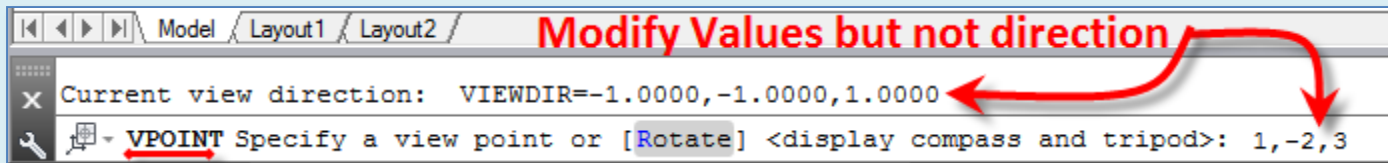
- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

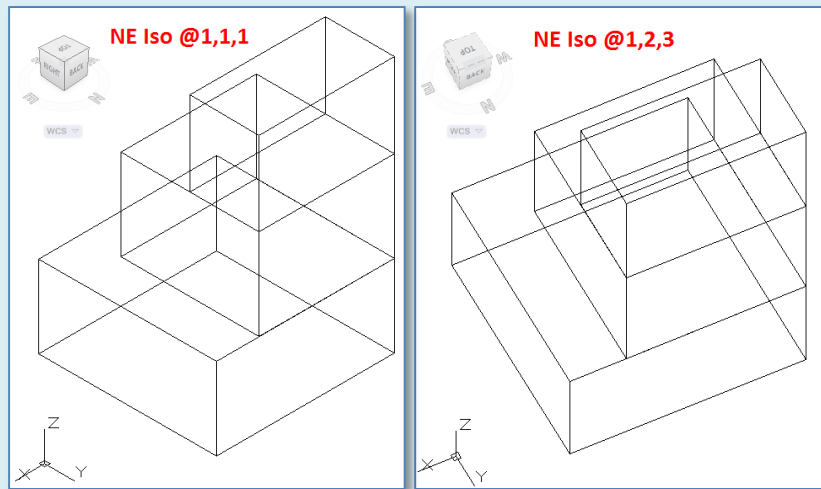
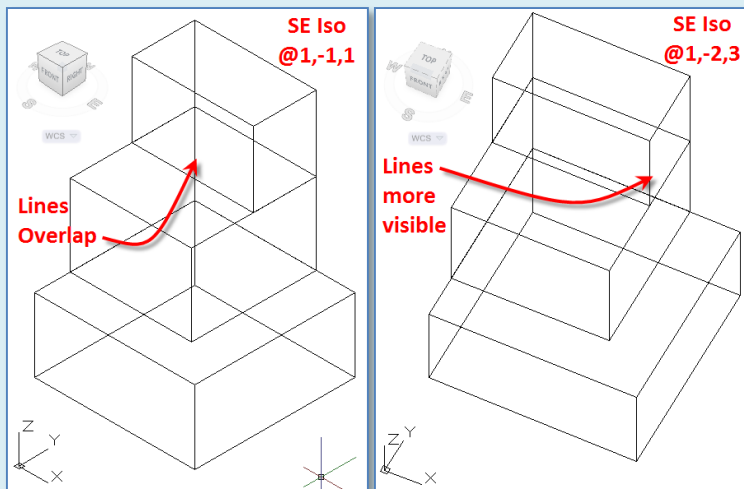
- Grid and Snap Settings

Wrap up

Vpoint Command 1,2,3 X,Y,Z



- SE Isometric
- At the Command Prompt
- Vpoint <1,-1,1> 1,-2,3



- NE Isometric
- At the Command Prompt
- Vpoint <1,1,1> 1,2,3

3D Solids & Boolean Operations : Overview

Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

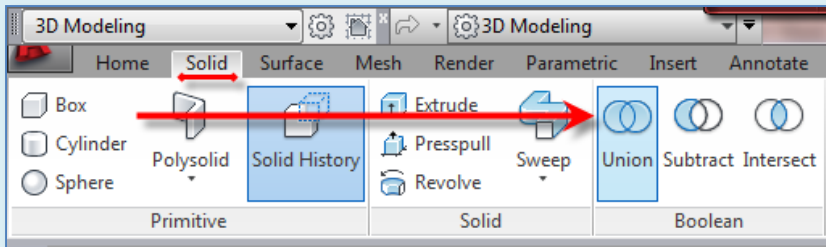
FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

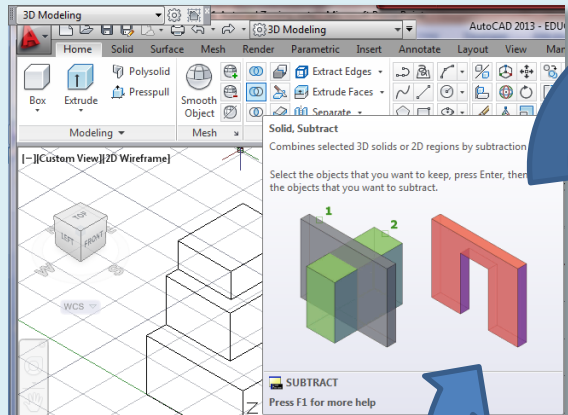
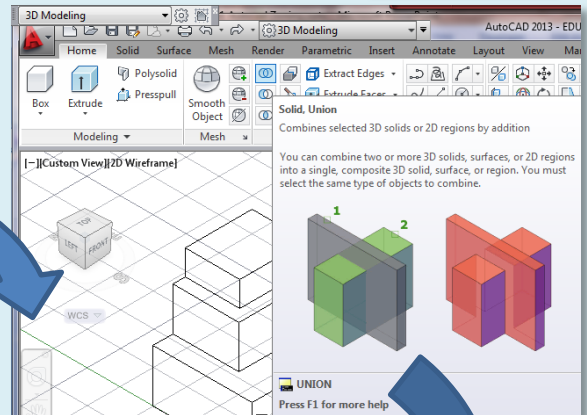
2D ISOMETRIC

- Grid and Snap Settings

Wrap up



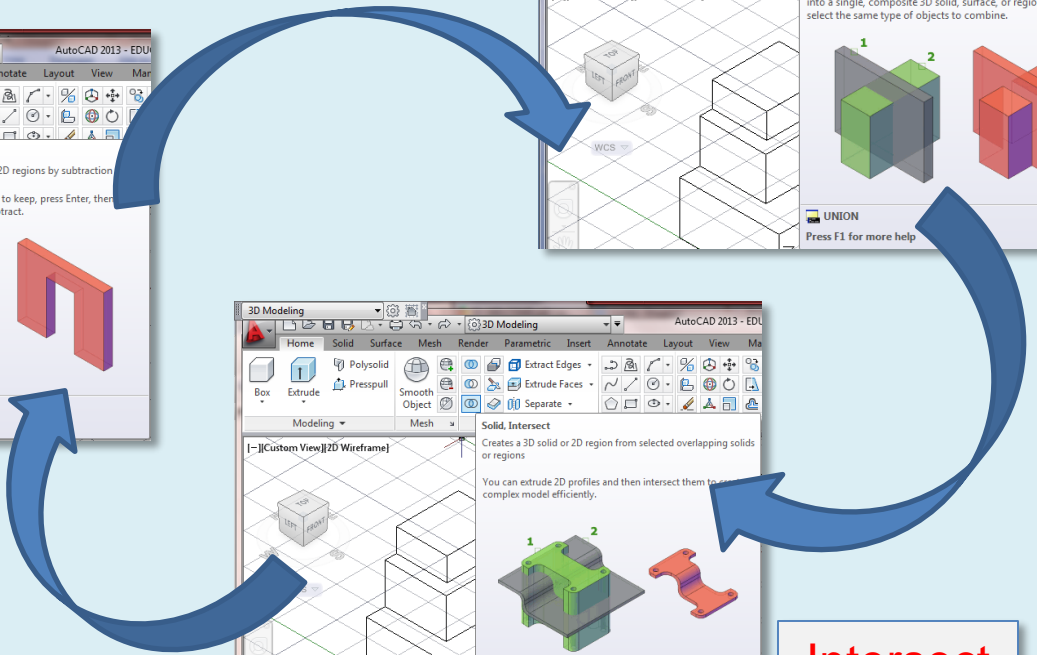
Union



Subtract



Intersect



Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

FLATSHOT

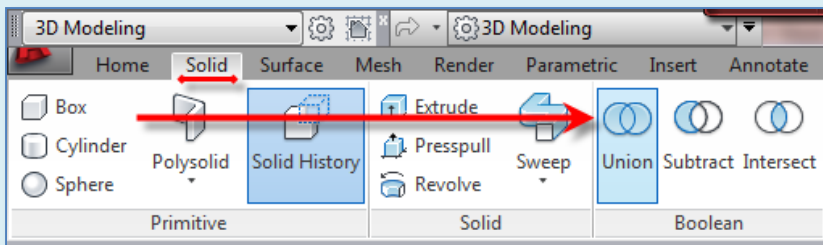
- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

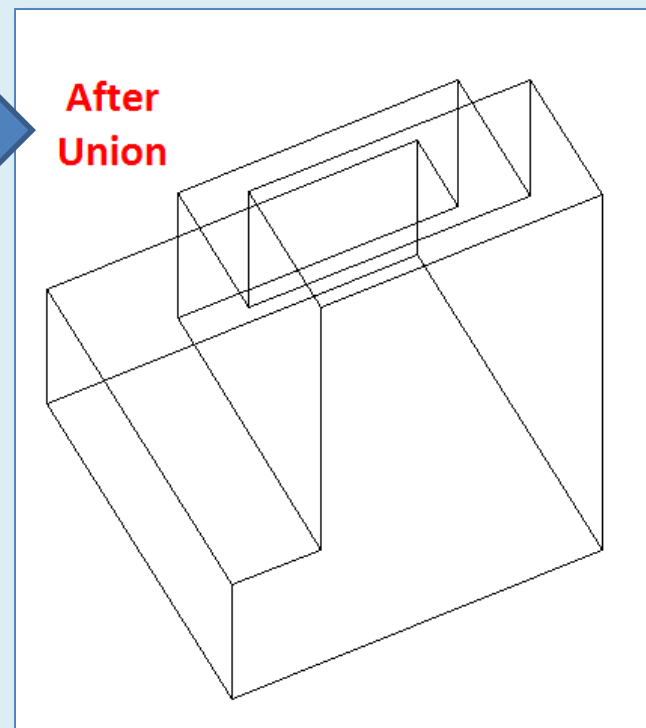
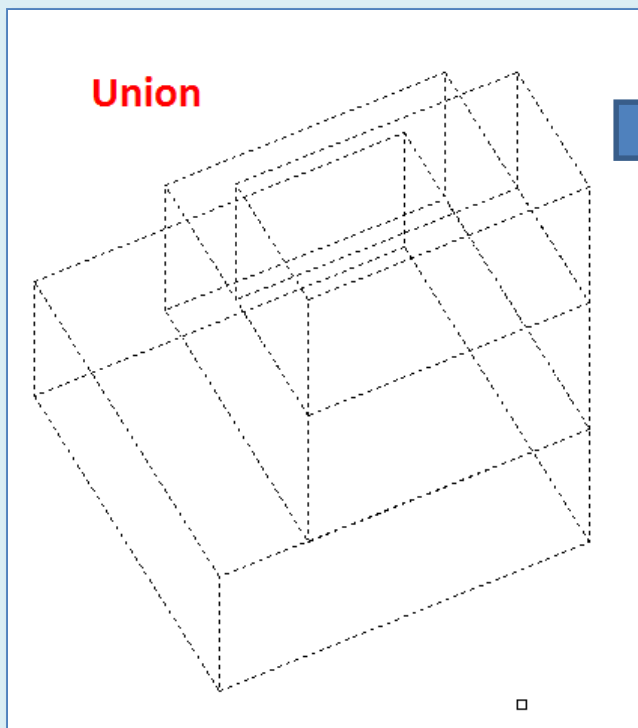
- Grid and Snap Settings

Wrap up

3D Solids & Boolean Operations : Union



- **Solid > Union**
- **Adjacent edges are gone**



FlatShot : 3D Isometric to 2D Isometric Block

Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

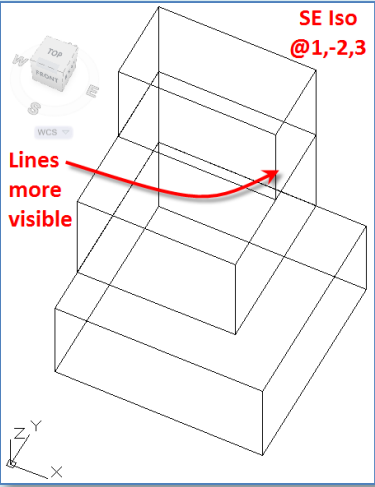
FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

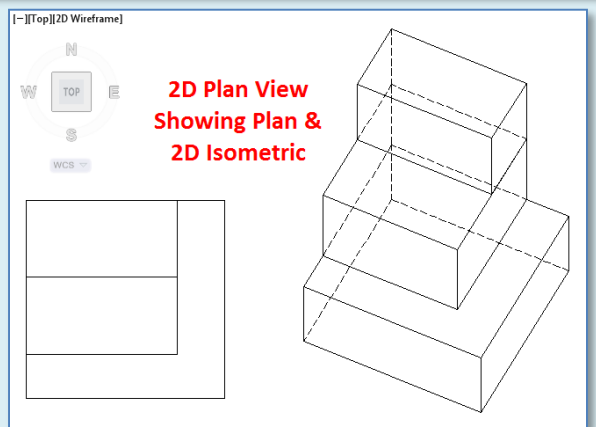
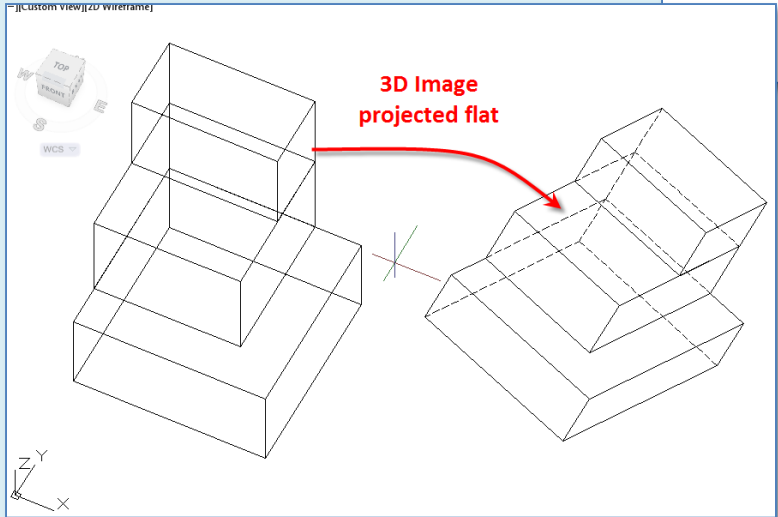
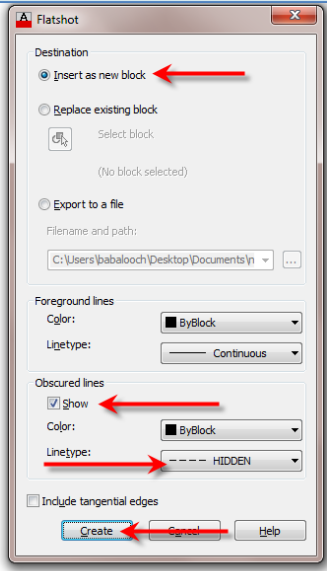
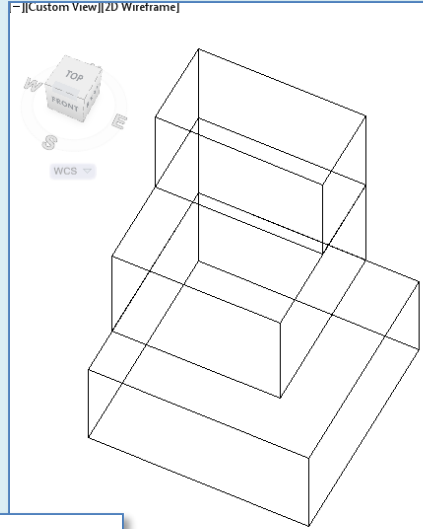
2D ISOMETRIC

- Grid and Snap Settings

Wrap up



- SE Isometric
- Vpoint 1,-2,3
- Flatshot
- Obscured Lines (Show)
- Linetype (Hidden)
- Create



FlatShot : 3D Isometric to 2D Isometric Block

Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

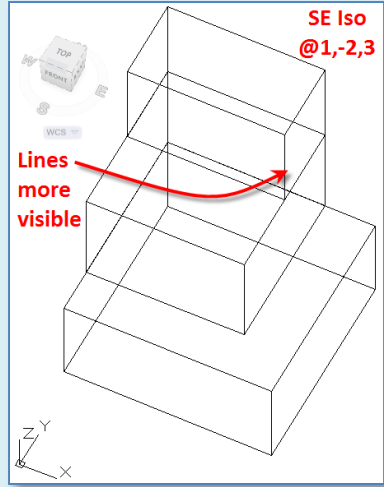
FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

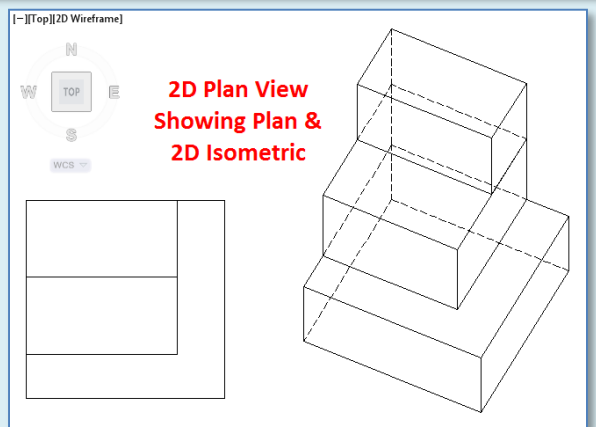
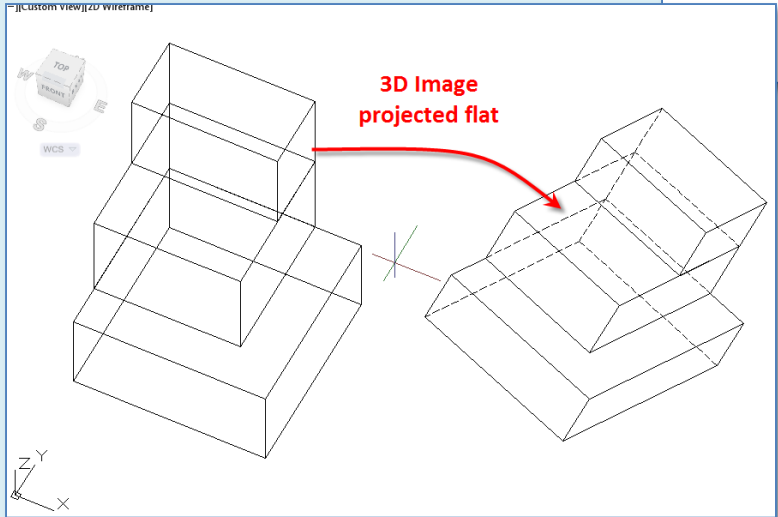
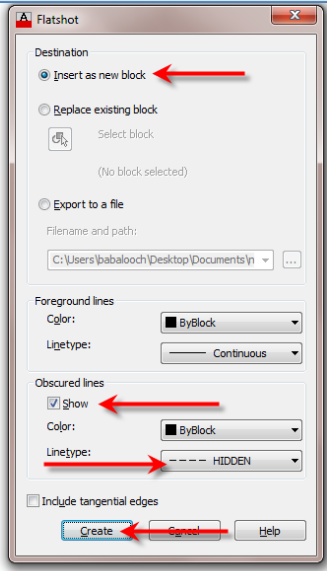
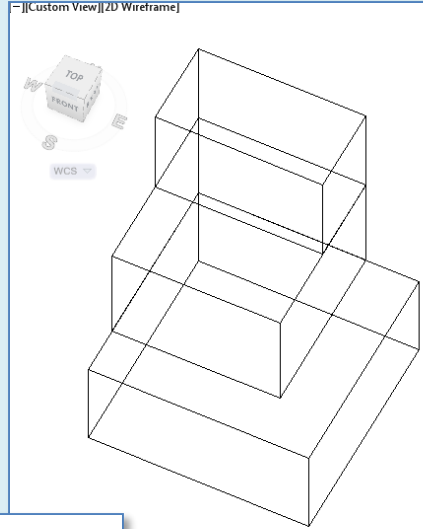
2D ISOMETRIC

- Grid and Snap Settings

Wrap up



- SE Isometric
- Vpoint 1,-2,3
- Flatshot
- Obscured Lines (Show)
- Linetype (Hidden)
- Create



Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

FLATSHOT

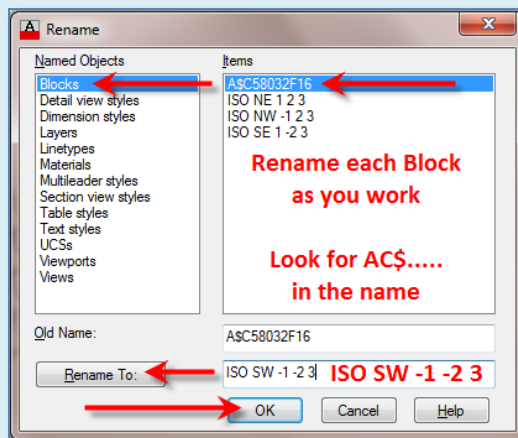
- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

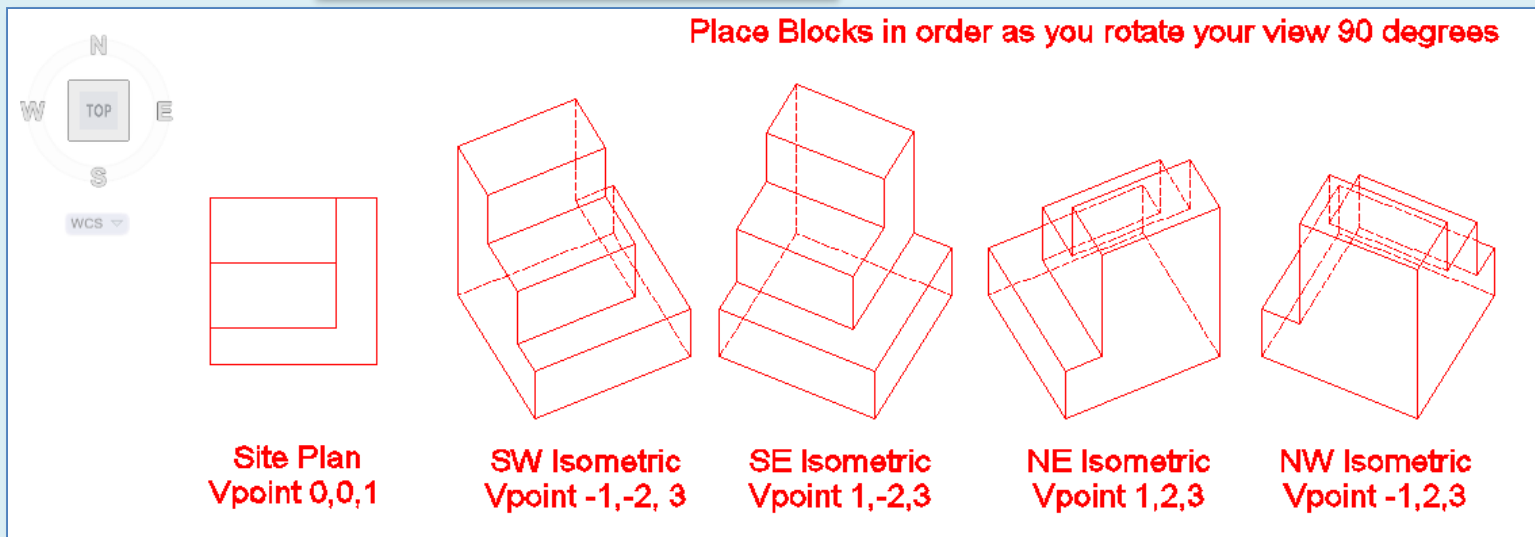
- Grid and Snap Settings

Wrap up

FlatShot : Insert and Rename Blocks



- Plan View
- Insert each as you go
- Place them in order
- Rename that one at a time



Site Plan
Vpoint 0,0,1

SW Isometric
Vpoint -1,-2, 3

SE Isometric
Vpoint 1,-2,3

NE Isometric
Vpoint 1,2,3

NW Isometric
Vpoint -1,2,3

FlatShot : Scale Blocks

Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

- Grid and Snap Settings

Wrap up

Select all blocks :

Scale

Basepoint → **Endpoint**

Site Plan Vpoint 0,0,1

SW Isometric Vpoint -1,-2, 3

- Requires known dimension

Reference : Endpoint to Endpoint

Snap to corners

Site Plan Vpoint 0,0,1

SW Isometric Vpoint -1,-2, 3

SE Isometric Vpoint 1,-2,3

NE Isometric Vpoint 1,2,3

NW Isometric Vpoint -1,2,3

Adjusted to correct scale

Site Plan Vpoint 0,0,1

SW Isometric Vpoint -1,-2, 3

SE Isometric Vpoint 1,-2,3

NE Isometric Vpoint 1,2,3

NW Isometric Vpoint -1,2,3

- Scale
- Select Objects
- Basepoint
- Snap to endpoints
- Enter new length

Drafting a 2D Isometric : Setting Grid & Snap

Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

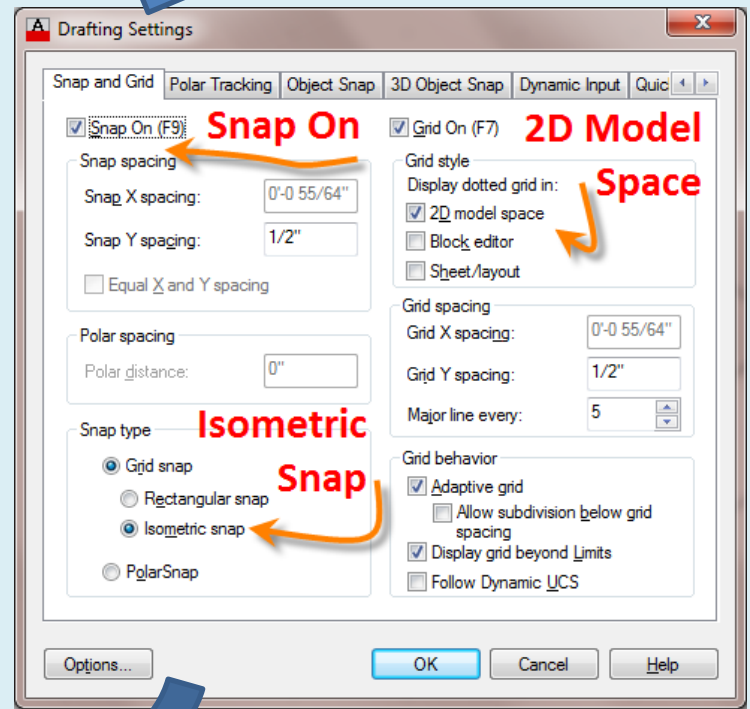
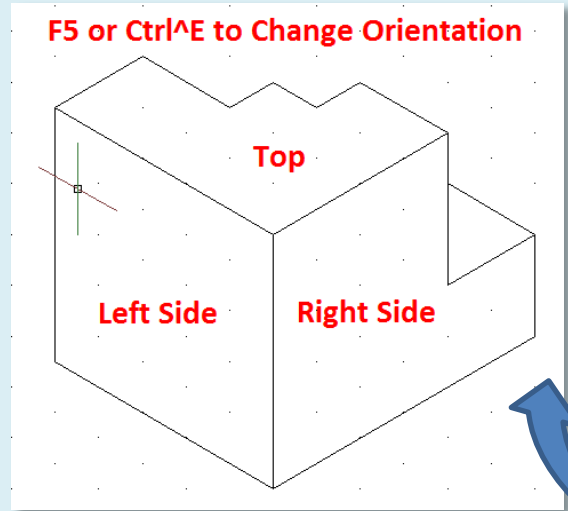
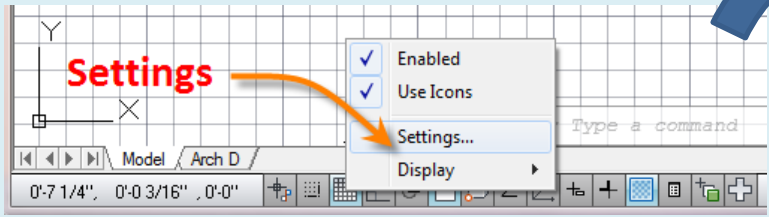
FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

- Grid and Snap Settings

Wrap up



Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad

3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

- Grid and Snap Settings

Wrap up

Lesson 02 – Wrap up

- **Assignment**
- ***Develop isometric zoning diagrams***
- ***Extrude***
- ***Vpoint***
- ***Boolean Operations***
 - ***Union***
 - ***Subtract***
 - ***Intersect***
- ***Flatshot***
 - ***Obscure line – hidden***
 - ***Rename Blocks***
 - ***Scale Blocks accurately***
- ***2D Isometric drawings***
 - ***Grid & Snap***